

Report to West Mercia Governance Board

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| Title of paper: | WM GB – DST Deep Dive |
| Meeting Date: | 22 Nov 2023 |
| Author: | Simon Bennett – Head of DS |
| Tactical lead: | |
| SRO: | Richard Muirhead – Director of Commercial Services |

Executive Summary:

This DST report provides an update on the progress, performance and planning for this critical transformation programme.

The programme was originally targeted on the infrastructure elements only, mainly unseen by most of the force, in critical need of remediation to enable the force to access and use modern systems. The inclusion of the West Mercia Transition programme (now application migration) changed the focus dramatically, as the programme became highly visible to the entire force, with far greater engagement, communication and planning required to ensure the force did not over-commit business resources for subject matter expertise and testing.

The environment for delivery of this programme has been far from that assumed in the original business case, the extended exit of Warwickshire undoubtedly impacted our ability to transform as did, to a lesser extent, the COVID situation.

The scope, deliverables and benefits are revisited and the status and performance of each shown. Despite the programme needing an additional year to complete, due largely to the addition of the application migration and the unforeseen Warwickshire delays, this demonstrates a very positive set of outcomes, including a vast improvement in stabilisation for the greenfield elements for our users. . The financials and governance are discussed, again with positive results and finally the current risks to the programme are defined.

The DS Strategy, produced at the outset of this programme and revised in September 2023, is attached and has guided the programme throughout to deliver a vastly improved technological landscape for West Mercia moving forward.

Report Contents

1. Purpose / key drivers of report

This report provides an update and status on the Digital Services Transformation (DST) programme as scheduled for the Nov 2023 Governance Group meeting. It is for information and requests no decisions from the board.

2. Background

- 2.1 The Digital Services Transformation (DST) programme was initiated during 2019 due to a pressing need to mitigate the issues associated with technical and organisational debt. To protect people from harm in our rapidly changing digital world, Digital Services had to be modernised. The aim was to develop capabilities to address the digital challenge and deal with the complexity of modern criminality through the exploitation of new technologies.
- 2.2 Previous West Mercia investment in ICT had primarily focussed on end-user devices and application solutions. Minimal time, effort, or investment has been focussed on the end-to-end technology platform which spans devices, applications, middleware, networking, servers and storage, hosting locations, and infrastructure applications. A clear focus on the security of systems and information, including lapsed accreditations were also identified as critical omissions, requiring immediate remediation work. This programme was designed to deliver the 'under the bonnet' infrastructure that was vital to support force requirements.
- 2.3 This transformation was agreed during the Alliance period, but quickly changed to a West Mercia only transformation, with the separation from Warwickshire happening concurrently. The transition, and it's multiple extensions, undoubtedly impacted West Mercia's ability to transform, reducing our internal change capability to virtually zero during this period. The COVID pandemic also impacted the programme, mainly through the exponential extension of equipment lead-times for supply, but also through difficulties getting the required suppliers and consultancy to provide the services needed.
- 2.4 The programme was initially designed to deliver over a four year period, with the phases aligned to the force financial years (Apr-Mar) and an overall ROM cost of £40M. Following the split of the Alliance this figure was revised down, by applying the NRE split of 31:69, to £32.67M; as shown below in the abstract from the original

DST business case¹. The West Mercia Transition programme was absorbed into DST (as the Application Migration project) in 2021, along with its budget allocation of £3.73M (bottom row in table) bringing the original ROM (+/- 50%) cost for West Mercia to £36.4M (£18.2M - £54.6M).

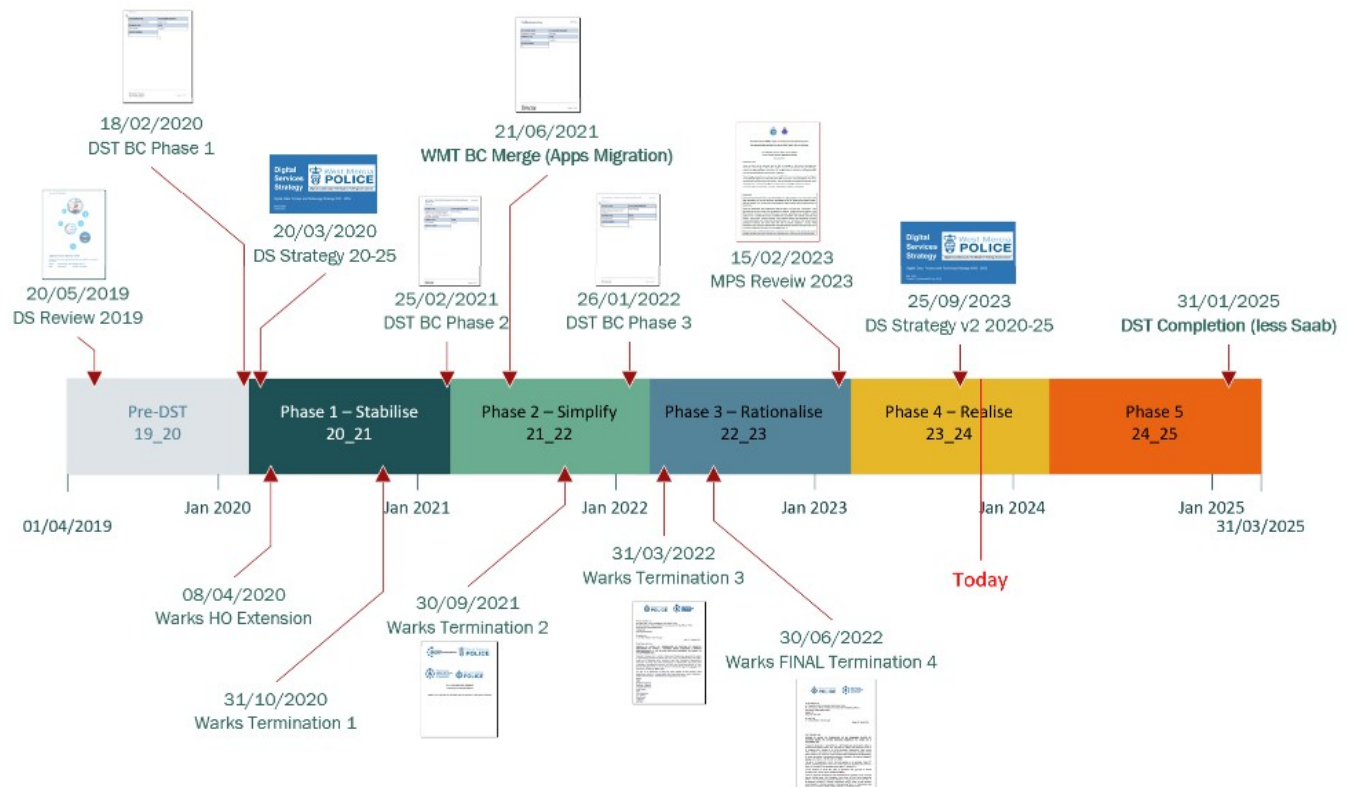
| Financial Year | Programme Phasing and Focus | Cost Estimate £M | |
|----------------|--|------------------|--------------|
| | | Total | Cumulative |
| 20_21 | Phase 1: Stabilise – Mitigating Risks and Resolving Issues | 7.73 | 7.73 |
| 21_22 | Phase 2: Simplify - Consolidate to reduce complexity | 8.65 | 16.38 |
| 22_23 | Phase 3: Rationalise – Reduce the cost of ownership | 8.65 | 25.03 |
| 23_24 | Phase 4: Realise – Providing Valuable Insights and innovation Opportunities | 7.64 | 32.67 |
| 21_22 | West Mercia Transition Programme (Application Migration) | 3.73 | 36.4 |

2.5 These ROM costs were evaluated and re-worked annually as more detailed information became available, allowing more informed decisions to be made on the programme by FY, the actual amounts required/requested/used are shown in the finance section below.

¹ FY 20_21: DST BC Overall, Ph1a and Ph 1b (v5 dated 13 05 2020).

2.6 The timeline below shows the major governance and environmental milestones for this programme, through to completion next financial year (24_25).

DST Timeline: May 2019 – Jan 2025



3. Main content or background information if required

3.1 **Scope.** The DST programme was instigated to address both the technical and organisational debt within West Mercia. The scope definition for the DST programme was initially quite general in terms of deliverables, this was due to the discovery work required to set these up in the early stages. The original BC² defined the scope as:

Each phase will consist of the following transformation work streams and will focus on delivering the agreed outcomes aligned to the objectives:

1. *Future Operating Model - Implement a new Digital Services operating model with new ways of working.*
2. *User Experience - Focus on the end user, providing the digital capability needed to make their jobs easier.*
3. *Technology Modernisation - Modernise and maintain technology services, mitigating legacy risk.*
4. *Cyber Security - Implement security capabilities to comply, prevent, detect and recover from cyberattacks.*
5. *Data and Integration – The right data, at the right time to the right person (R3).*
6. *Cost of Ownership – Drive down costs with technology road maps and focus on longer term holistic service delivery.*
7. *Business Continuity and Resilience - Remove single points of failure and mitigate risks that impact operations.*

This was further refined by phase as shown below:

- 3.1.1 **Phase 1a** - Stabilisation: VMB Infrastructure & Security Remediation Implementation³. This phase aimed to deliver security accreditation and provide hardware for the KCOM project to deliver applications from that network onto the VMB (brownfield) infrastructure. More details can be seen in the attached file as referenced.
- 3.1.2 **Phase 1b** – Stabilise FOM, EUE and Data Integration⁴. This phase was the true start of DST as currently defined, starting to deliver the Future Operating Model (FOM) and improvements for the organisation and setting up the greenfield (GF) environment. An important deliverable of this phase was the DS Strategy 2020-2025 (revised in Sep 2023)⁵, this sets the end state that DST aimed to deliver. The revision this year proved this strategy fit for purpose, with little changes required to account for the technological and environmental changes since inception. More details can be seen in the attached file as referenced.

² FY 20_21: DST BC Overall, Ph1a and Ph 1b (v5 dated 13 05 2020)

³ FY 20_21: DST BC Overall, Ph1a and Ph 1b (v5 dated 13 05 2020)

⁴ Included in file above.

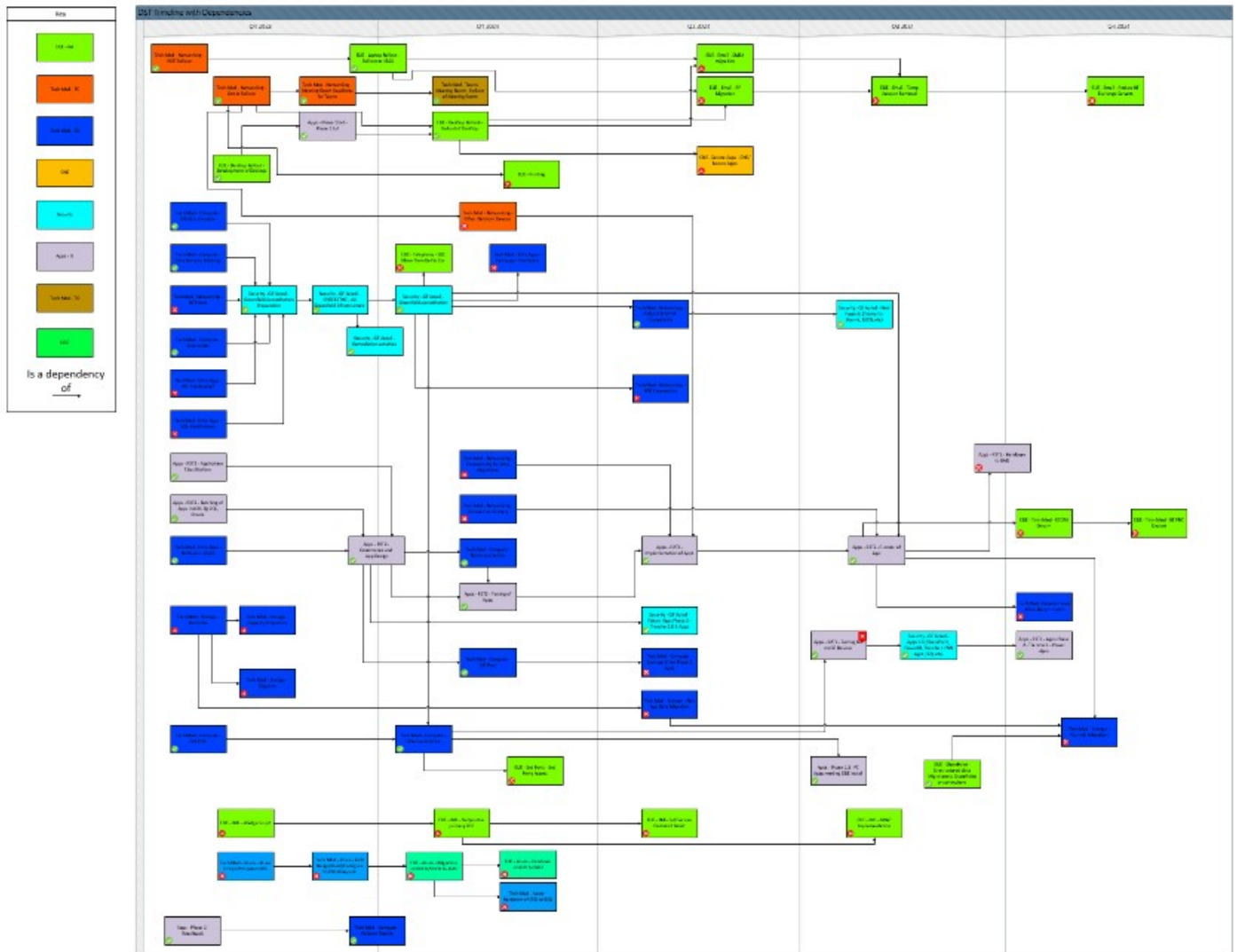
⁵ Current DS Strategy (v2 revised Sep 2023)

- 3.1.3 **Phase 2** - Simplify - Consolidate to Reduce Complexity - FOM, EUE, Data Integration and Technology Modernisation⁶. This phase built on the previous phases, providing the End User Experience (EUE) environment that has subsequently been rolled out across the force. The Technology Modernisation stream built out the connectivity and servers required to deliver the full National Enabling Programme (NEP) specified environment for the force. More details can be seen in the attached file as referenced.
- 3.1.4 **Phase 2** – Integration of the West Mercia Transition (WMT) programme⁷. The WMT programme was merged into the DST programme (Application Migration). This element sought to move all applications within WM, less Saab and Origin which were subject to separate programs, onto the new GF environment. More details can be seen in the attached file as referenced.
- 3.1.5 **Phase 3** - Rationalise - Reduce Cost of Ownership⁸. This phase continued the drive to modernise the technical environment in WM, moving us through the NEP model of EUE rollout and accreditation. Technical Modernisation was focussed on wifi delivery and ensuring the DFU infrastructure was delivered. Applications migration was included as a workstream. More details can be seen in the attached file as referenced.
- 3.1.6 **Phase 4** – Realise. This phase built on the previous years to rollout new devices across the force and to implement a new, industry standard datacentre at Corsham, utilising the Crown hosting arrangements offered by the Cabinet Office. This year also saw the start of handover from the programme into the force BAU for aspects of the infrastructure and this will continue throughout this FY. The D&I elements of DST have now been separated out into the Data Driven policing programme, with a significantly different scope from previously.
- 3.1.7 **Phase 5** – Finalise. Next year's phase will see the deployment of all outstanding technology from DST into BAU live operation and support. The application migration is the key element of this drive, enabling direct access of applications that are hosted on, or through, the GF environment. This will lift those applications into a supported level and address many of the legacy issues around these. Saab needs to be deployed to the GF during this period and this is currently in planning phase. This phase will decommission the old elements of the

⁶ FY 21_22: DST BC Ph 2 (v1.2 dated 25 02 2021)

⁷ FY 21_22: WMT BC (v1.6 dated 14 12 2020) – consumed into DST Jun 21

⁸ FY 22_23 - DST BC Ph 3 (v1.0 dated 26 01 2022)



3.3 Benefits sought/delivered. The cashable benefits listed in the BCs were not in themselves a driver for the programme, it was well understood that the poor IT in West Mercia was having a negative impact on all elements of operations. The intent was to deliver functional, modern and secure IT that was fit for the force and enabled greater agility in future for innovations. The tables, at para 3.3.1 and 3.3.2, below have been extracted from the various BCs to show what benefits were listed and status thereof.

3.3.1 Cashable benefits. There were three cashable benefits listed in the BCs, totalling a five year total of £7.775M, to date £4.16M are on track to deliver. As the table above shows, the Phase 1a saving is on track to deliver as we cancelled the KCom support contract. Similarly, the Phase 2 & 3 savings were taken as we reduced the size of DS down from that under ITSS. It should be noted that although the Warks delayed departure impacted our transformation schedule, it did provide an additional £2M funding that was not forecast. (This £2M has not been included in DST benefit figures). The savings sought for removal of travel expenses etc are still to be fully captured, but are unlikely to represent the £1M p.a. originally sought. The travel expense budget has had £96K per year permanently removed and wider benefits are being tracked by the Change team.

| Doc/BC | Benefit | 5 Year Actual | | | |
|--------------------------|--|---------------|-------|---------|------------------------|
| | | Year 1 | Total | savings | |
| Cashable | | | | | |
| Ph 1a | Avoiding the costs associated with KCOM network and equipment support costs. Net effect from £2M KCOM saving, offset against move of some charges to increase VMB. | 0.5 | 2.5 | 2.5 | On track |
| | EUE O365 Collaboration Cost Savings: | | | | |
| | O365 Collaboration and Mobility, Reduced travel costs for meetings | | | | £96K per year has been |
| Ph 1b | 1000 People x 20 Meetings x £50 Expenses £1M p.a.) | 0.025 | 4.025 | 0.41 | removed from budget. |
| | FOM Cost vs IT55: | | | | |
| | 250K/year resource mitigation moving to new model: | | | | |
| Ph 2 & 3 | *15k/rack Defford vs 7K/rack CH | 0.25 | 1.25 | 1.25 | On track |
| Total cashable benefits: | | 0.775 | 7.775 | 4.16 | |

3.3.2 Non-cashable benefits. As with many large IT programmes, many of the benefits are not delivered fully until the programme has completed, this is true for DST. The amber benefits above have all been started, but full benefits will not be realised until we can decommission all previous infrastructure.

Non-cashable

| | | |
|----------|---|------------------------------|
| Ph 1a | Supports PSN / PSN-P Accreditation | |
| | Mitigation of risks associated with Technical Debt (Stabilisation) Mitigation of Security Vulnerabilities Security and Compliance. | |
| Ph 1b | A secure, accredited and compliant operation and capabilities. Cost Avoidance - Security breach recovery - Govt. estimates £1.4M – £3M | |
| | Improved user experience | |
| | With a simpler more intuitive user experience for data capture and searching with productivity tools to make our jobs easier. | |
| | Seamless collaboration and mobility | |
| | Access to applications and data irrespective of role, time and location driving productivity. | |
| | Reduction in non-productive travel to and from external meetings ~40000hrs/year | |
| | Improved operational effectiveness | |
| | Simplification of our data structures, processes, applications and infrastructure improving productivity. | |
| | Lower cost of ownership | |
| | Developing technology roadmaps and enterprise architecture practises that will simplify and reduce complexity delivering value for money. Negate the need for costs of core infrastructure services such as Device management, E-mail, Backup and Storage ~£1M+ as migrated to cloud. refresh | Ongoing |
| Ph 2 & 3 | Data Compliance | |
| | More effective management of ours and the public's data | Ongoing |
| | Mitigate Technical debt issues | |
| | Savings from decommissioning work – KCom and rationalisation. The current technical estate has received minimal platform-level investment or convergence resulting in a complex technical platform that is no longer fit for purpose | |
| | Mitigate Organisational debt issues | |
| | The current people, processes and culture has followed a similar path to that of technology. There has been minimal focus on maturing aspects of the operation to a point where it is now compromising performance | |
| | Security and Compliance | |
| | A secure, accredited and compliant operation and capabilities. Cost Avoidance - Security breach recovery - Govt. estimates £1.4M – £3M | Final accreditation underway |
| | Improved user experience | |
| | With a simpler more intuitive user experience for data capture and searching with productivity tools to make our jobs easier | |
| | Improved operational effectiveness | |
| | Simplification of our data structures, processes, applications and infrastructure improving productivity and enhancing officer safety | DDP prog |
| | Lower cost of ownership | |
| | Developing technology roadmaps and enterprise architecture practises that will simplify and reduce complexity delivering value for money. Negate the need for refresh costs of core infrastructure services such as Device management, E-mail, Backup and Storage ~£1M+ as migrated to cloud | Ongoing |
| | Data Compliance | |
| | More effective management of ours and the public's data avoiding reputational damage and possible large fines | Ongoing |
| | Hosting | |
| | Consolidation and Rationalisation of hosting platforms and services | Ongoing |
| | Cost of running Defford vs Crown Hosting (CH) | |
| | *15k/rack Defford vs 7K/rack CH | |
| | Integrated Communications | |
| | The integration of enterprise communication within M365 and Teams | |
| | Continuity and Resilience | |
| | Providing capacity and flexibility from the start by using a holistic approach to operational capabilities. Mitigate possible cyber events through resilient practices. | Ongoing |
| | Strategic business engagement and forward planning | |
| | Enhancing the people experience throughout the business, better planning/forecasting of technical and business resources for change initiatives; local or national | Ongoing |

3.3.3 **Progress.** As referenced previously, many benefits inherent in the newly delivered technologies don't fully deliver until the programme delivery has concluded. However, with the programme in its fourth year, many improvements are already delivered, these are detailed at **Appendix 1**. One of the key improvements already delivered by DST is the rollout of greenfield devices across the force. These devices have improved boot-up speed, connectivity and security. These new devices, and underlying infrastructure, have vastly improved stability for the force, we have raised expectations high and this is reflected in people's frustration accessing 'reachback', where they have to access the brownfield network, previously their only option. We are now focussing on moving all applications to greenfield which will bring them up to the required standard, removing these issues and also mitigating reachback for this interim period.

3.3.4 **Next steps.** The DST programme has, and continues, to lay solid foundations for WM to build its' future technological aspirations upon. Once we have one secure network (greenfield) with all applications and services delivered natively, we have the ability to drive our ambitions to maximise collaboration across policing, more easily join national programmes of choice/need and build on our data use to fully deliver Data Driven Policing (DDP). As the DDP programme develops our data use, we will need to revisit the DS Strategy to include the many opportunities that are now presented; the DS Strategy 2026-2030 will be a new approach, having raised expectation, we also need to raise our ambitions.

3.4 **Governance and review.** The internal governance has been subject to the standard Change processes for the force. Project boards report through to the DST Programme Board and seek authorisations and decisions from the Change and Transformation Board. Throughout the programme a third party assurance partner (Issured) has been employed to assess, report and make recommendations to the senior leadership, through the DCC (C&T Board chair), with a focus on the programme management, technical direction and other directed areas. Issured have challenged and supported throughout this period and provide an impartial, external expert opinion on progress and direction. Additionally, in Feb 2023 the Metropolitan Police conducted a review of the programme and endorsed the approach taken and future planned direction.

4. Financials

4.1 The ROM cost of completing DST (including WMT) was estimated (May 2020) at: £36.4M. As each year progressed, more details were available on requirements and their associated costs; these have been bid for each FY as part of the force budget

setting processes. There have been a number of changes to the budget during this programme, notably:

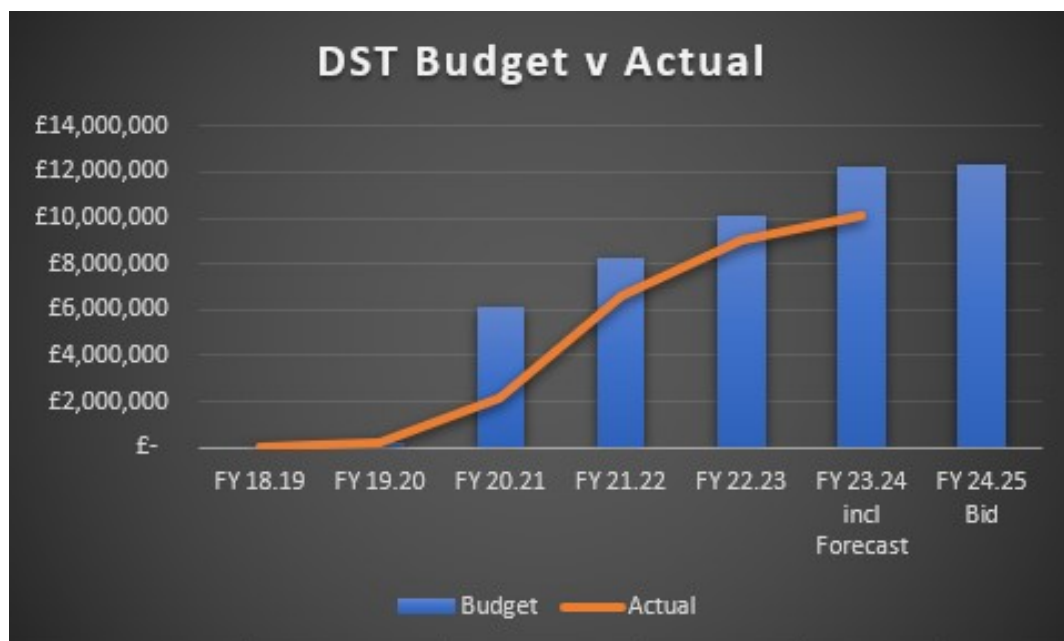
- 4.1.1 WMT programme absorbed into DST: £3.7M added to budget (incl in total above).
 - 4.1.2 DST FY21_22: An additional £332K funded internal staff costs.
 - 4.1.3 DST FY22_23: £1.41M moved from DS budget into DST for EUE hardware. This has been included in the actuals for DST but was previously a DS BAU cost and budget, a consolidation of budgets rather than additional cost.
 - 4.1.4 D&I removed from DST to standalone as the Data Driven Policing (DDP) programme as of 31 Mar 2024. The costs of D&I are included in the actuals for DST, but have a separate DDP bid for next year.
 - 4.1.5 DST was moved under DS management during Dec 2022. The finances were subsequently merged, although shown separately to allow clear reporting, during May 2023 to help drive efficiencies and to ensure a greater focus on planning to achieve savings targets.
- 4.2 The Estimate At Completion (EAC) for the DST programme is: £40.4M. This figure represents the sum of Actual Spend: £28.1M plus bid for next FY 24_25: £12.4M. It should be noted that the 'actual spend' for this FY 23_24 includes the current forecast to year end amount. These details are shown in the table below.

| | Capital | Revenue | Additionality | Comment |
|---------------------------------|--------------|-------------|---------------|--|
| Budget 18.19 | £ - | £ - | | |
| Actual Spend | £ - | £ 42,228 | £ 42,228 | |
| Budget 19.20 | £ - | £ 241,220 | £ 241,220 | |
| Actual Spend | £ - | £ 229,738 | £ 229,738 | |
| Budget 20.21 | £ 2,720,000 | £ 1,390,000 | £ 4,110,000 | |
| D&I Budget | £ 2,010,000 | | £ 2,010,000 | |
| Actual Spend | £ 1,640,403 | £ 535,612 | £ 2,176,015 | |
| Budget 21.22 | £ 4,549,000 | £ 2,925,000 | £ 7,474,000 | Additional budget was to fund capitalisation of internal staff |
| D&I Budget | £ 491,000 | £ 260,000 | £ 751,000 | |
| Actual Spend | £ 4,586,548 | £ 1,990,573 | £ 6,577,121 | |
| Budget 22.23 | £ 4,414,000 | £ 1,927,520 | £ 6,341,520 | Movement of laptop budget out of DS into DST |
| Budget Apps/WMT | £ 3,526,000 | £ 200,000 | £ 3,726,000 | |
| D&I Budget | | | £ - | |
| Actual Spend | £ 8,051,987 | £ 934,107 | £ 8,986,094 | |
| Budget 23.24 | £ 4,175,000 | £ 544,319 | £ 4,719,319 | |
| Budget Apps/WMT | £ 5,500,000 | £ 200,000 | £ 5,700,000 | |
| D&I Budget | £ 1,815,000 | | £ 1,815,000 | |
| Forecasted Spend | £ 9,509,464 | £ 575,382 | £ 10,084,846 | |
| Total Budget | £ 29,200,000 | £ 7,688,059 | £ 36,888,059 | |
| Total Budget excl D&I | £ 24,884,000 | £ 7,428,059 | £ 32,312,059 | |
| Total Spend | £ 23,788,402 | £ 4,307,640 | £ 28,096,042 | |
| 24.25 Budget Request (excl DDP) | £ 10,703,828 | £ 1,636,000 | £ 12,339,828 | |
| Programme EAC | £ 34,492,230 | £ 5,943,640 | £ 40,435,870 | |

4.3 Estimate performance. This table shows the final position for DST as it completes next FY. As referenced in paragraph 4.1.3 above; an evaluation of the original ROM estimate versus current EAC should exclude the DS £1.41M hardware budget; this would give us a closing estimate of: £39M from an original estimate £36.4M, showing an overspend of £2.6M (7.1% variance).

4.4 Budget performance. There has been much discussion during the programme of 'over-bidding' for budget that cannot be delivered in FY. As you can see from the graph below, hopes to deliver have not always been met. There are many factors that have fed into this issue, not least of which is the assumption that Warkwickshire

would have been clear of our systems during the bulk of the programme, whereas they continued to draw heavily on resources until their final departure in Jun 2022 (year 3 of 4). This led to 'stacking' of requirements to be delivered, and there has also since been an element of optimism bias in planning; that this could be recovered. The second major factor in the extension from 4 to (nearly) 5 years was the inclusion of the WMT programme. Although the correct decision to align it into DST, the original schedule did not include this large element of scope that will justifiably take longer than the original DST plan to complete. The DST programme has however, gained momentum year on year. The graph below demonstrates the budget performance during the first 4 years of DST.




5. Risk Assessment

The programme risks are managed continually at all levels of the programme. These are escalated through the boards for decision and assistance as required. The main programme level risks are detailed in the table below.

| There is a risk that... | Mitigation |
|---|--|
| If business priorities and or commitments levels change then the programme does not deliver the strategic requirements. | <ul style="list-style-type: none"> • Ensure business sponsorship and alignment • Ensure effective change and communications are in place |
| If funding is cut, the programme will not deliver the required benefits and possibly make the situation (complexity/cost) worse. | <ul style="list-style-type: none"> • Set approved plans and budgets in a timely manner • Ensure stakeholders are aware of the cost and impact of partially delivered outcomes. • Ensure maximum use of internal resources |
| If other local and national dependant programmes have new requirements that are not considered adequately. | <ul style="list-style-type: none"> • Review and align proposed plans widely and in a timely manner • Assess conflict and flag outcomes that will need review • Manage dependencies across the force |
| If the transition causes too much disruption then public service may be impacted. | <ul style="list-style-type: none"> • Review and align proposed plans as much in advance as possible • Assess conflict and flag outcomes that will need review |

6. Background papers – for information only. The papers referenced in this report are included for additional information/detail only if required. The report content is designed to be standalone, so these do not need to be read to consider this paper.

Probably the most important of these is the DS Strategy, as revised in Sep 2023. This document describes the desired end state for West Mercia and has guided the programme from the outset.

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| <p>Current DS Strategy (v2 revised Sep 2023)</p>  <p>2023-09-18 Digital Services Strategy v2.0</p> <p>DS Review (v1.0 dated 20 05 2019)</p> |
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Digital Services
Review 2019 - V1.0i -

FY 20_21: DST BC Overall, Ph1a and Ph 1b (v5 dated 13 05 2020)



DST Programme
Business Case (Phase

FY 21_22: DST BC Ph 2 (v1.2 dated 25 02 2021)



DST Business Case
21 (V1.2).pdf

FY 21_22: WMT BC (v1.6 dated 14 12 2020) – consumed into DST Jun 21



WMT
Full_business_case_v1

FY 22_23 - DST BC Ph 3 (v1.0 dated 26 01 2022)



DST Programme
Business Case (Phase

Disclosure and Sensitivity

Official

Comments of relevant proper officer(s) or person(s) with statutory responsibilities

N/A

Appendix:

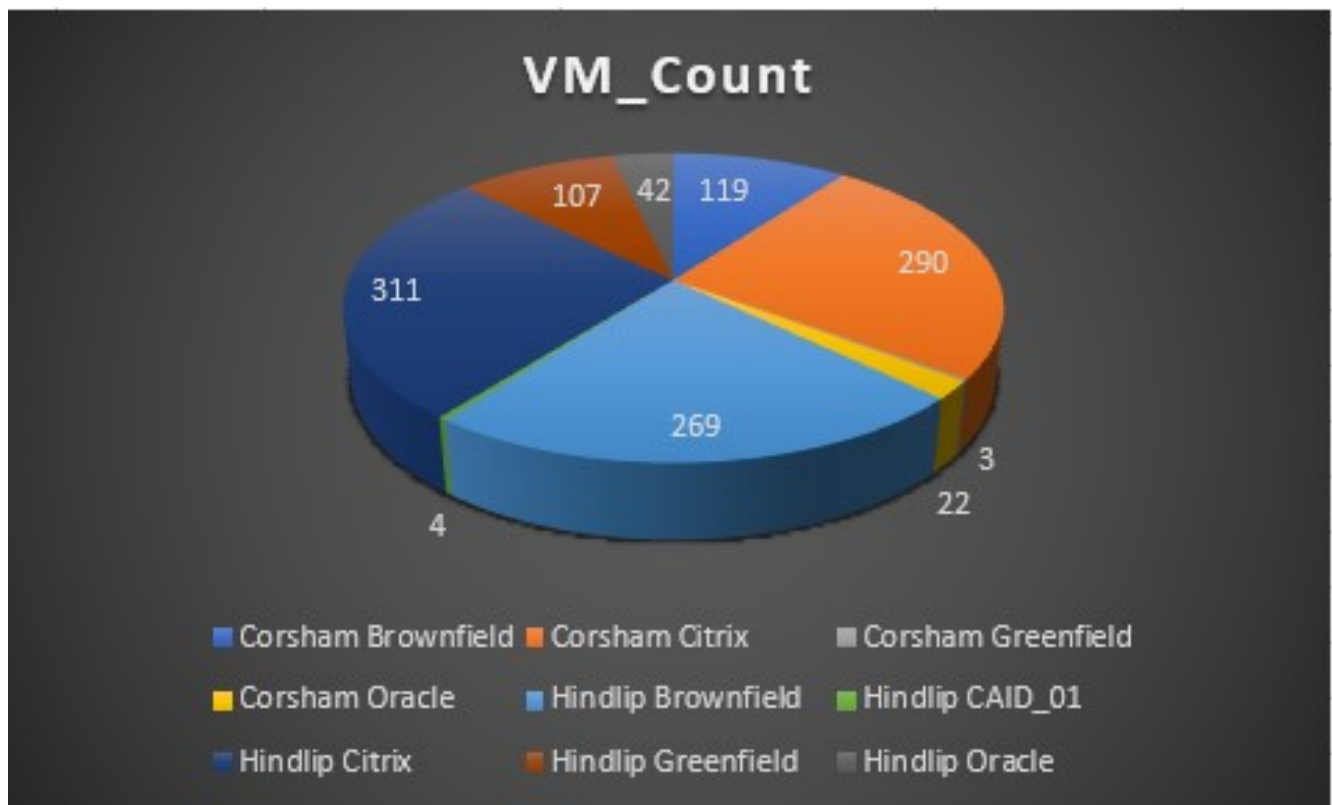
Appendix 1 – DST Technical progress

Datacentre

Hardware

Compute

- HPe Blades – 58 blades deployed across 2 datacentres. This has been segmented into 9 different VMWare clusters. A portion of these clusters hold brownfield virtual machines, the rest is greenfield. As applications are migrated to from brownfield to greenfield compute resource will need to be moved with it, this isn't a physical move, but a logical move of a host from one cluster to another.
- A total of 1167 virtual Machines have currently been deployed. This is the current spread of virtual machines across the clusters

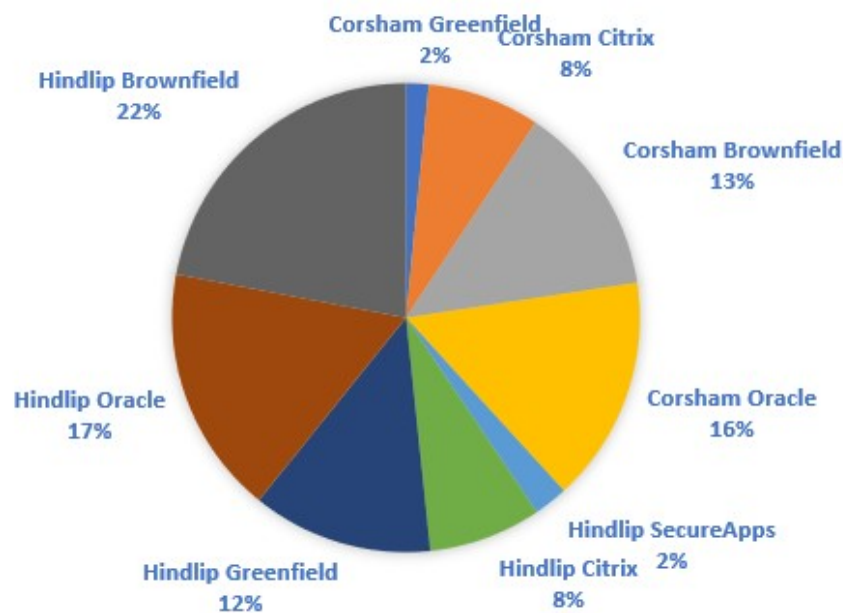


- With the better, newer hardware deployed in the HPe stack the onus on application availability has been moved from the operating system level to application level.

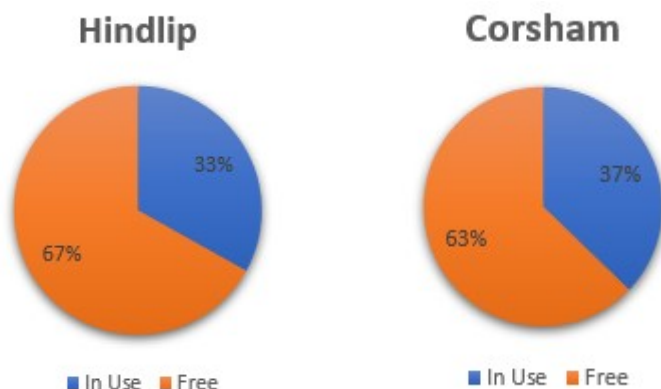
Storage

- Space on the Nimble is currently shared between the 9 compute clusters. The spread of storage can be seen here:

BREAKDOWN OF PROVISIONED SPACE BY ENVIRONMENT



- This is the current distribution of space between the 2 datacentres



Networking

- Both datacentres have been deployed with a highly resilient network. This should allow the primary datacentre to be able to suffer hardware failures without the need to fail everything over. This also allows patching and maintenance to be completed without the need for downtime.
- A new wifi network has been rolled out across the force, this was needed to be able to support the increased bandwidth needed by users with the introduction of Office 365. As an example, video calling within teams requires a huge bandwidth increase.

- Dot1x is currently being rolled out to the entire estate. This allows the same networking equipment within the forces' remote sites to be used for both brown field and green field devices.

Services

The below is a list of infrastructure services that have been deployed within the Greenfield environment. All this forms the base layer that is needed to allow users and applications to consume the new Greenfield environment.

Identity

- Azure AD Connect – Used to sync user accounts to EntraAD/Office365
- DHCP – Hands out IP addresses to devices on VPN and the LAN
- Domain Controllers – Deals with authentication of servers, users and workstation. It also controls policy deployed to servers
- NTP – Provides an accurate source of time within the network from GPS satellites.
- Sailpoint – Provides an orchestration service for everything related to the user joiner, mover leaver process. This will be key for the implementation phase of the RBAC project.

Database

Resilient pools of database resource have been created to allow apps to consume. The database services have been configured in tiers so that the right application have the correct amount of resource and resilience.

- Oracle App Server (Web Logic)
- Oracle DB Server (Palas)
- Oracle DB Server (RCU)
- SQL - Always On AG Groups (Cat A)
- SQL - Always On FCI (Cat B)
- SQL - Standalone (Cat C - Test & Train)

Collaboration

- Exchange - Edge Transport – Internet facing servers which transport emails to/from Exchange Online
- Exchange Server – Allows the link between on-premise and Exchange online to be managed.
- Print Server
- ServiceNow – MID – Allows data to be collected from the on-premise environment by ServiceNow

Infrastructure

- SMB Cluster – Provides a resilient shared area for application data to be housed

EUE

Build out of O365 PDS Blueprints

Each of the PDS blueprints have been used as a base for the design and implementation of the Office 365 deployment.

Laptop/Desktop Rollout

Over 3500 laptops have been rolled out to West Mercia staff. The desktop rollout will begin in earnest once the dot1x is rolled out to a sufficient number of sites.

Mobile Roll out

New mobiles have been rolled out to the force, all managed via Microsoft Intune. This allows the devices to be kept up to date, secured and with a consistent suite of applications.

Allowing officers and staff to quickly get access to information when they need it, no matter where they are.

Application Migration

Application Passporting

Application passporting, also known as application profiling, is an important practise especially when it comes to improving IT infrastructure during migrations. It entails meticulously documenting the characteristics, dependencies, and needs of an application.

Application Dependency Planning

When migrating programmes to new settings, application dependency mapping is critical. It entails thoroughly documenting an application's complicated links and interactions with other components such as databases and infrastructure. Several important factors underscore the vital importance of application dependency mapping in this situation.

Reach back

Users must continue to have access to all applications that have not been migrated to the greenfield environment. This necessitated the establishment of a new Citrix environment, as well as the installation of most applications' clients on the Citrix servers.

Appendix 2 - Objectives

Reliability: Users must be able to rely on the IT services and applications that they require. They can work without being interrupted or taking breaks, ensuring that their production remains high.

Seamless Access: Users should have constant and seamless access to the IT resources they demand, regardless of the time of day or location. They should not be interrupted whether they are in the office, working remotely, or utilising mobile devices.

Redundancy: A highly available IT environment should include redundancy at several levels, such as servers, network infrastructure, and data storage. Redundancy ensures that if one component fails, another may take its place, resulting in little downtime.

Scalability: The IT environment should be designed to be scalable in order to support changes in user demand or growth. This ensures that resources are always available when they are needed, even during peak consumption periods.

Disaster Recovery: Disaster recovery procedures are included in high availability. In the event of a natural disaster, cyberattack, or other unanticipated disruptions, users should not lose access to important data or services. Data backups and recovery plans are essential components of this.

High Performance: A highly available environment should not only provide uptime but also perform well. Even during peak usage periods, users should not experience slow or reduced service.

Security: To protect users' data and privacy, the environment should maintain strong security measures. To reduce possible dangers, security should be embedded into every component of the IT architecture.

Monitoring and Alerts: IT personnel should constantly monitor the environment for problems and receive alerts when they occur. This proactive approach assists in addressing possible issues before they affect users.

Service Level Agreements (SLAs): Service providers or IT departments should develop and meet SLAs that indicate the expected level of availability and support for users. Users should have clear expectations about the services on which they can rely.

User Support: A responsive and effective support system should be in place for users to report problems or seek assistance. When assistance is required, users should have quick access to a help desk or an IT support team.

User Education: Users should be trained on how to maximise the benefits of the IT environment and how to effectively use available technologies. This can help to avoid problems and improve their overall experience.

To summarise, the modern highly available IT infrastructure being delivered prioritises reliability, seamless access, redundancy, scalability, disaster recovery, high performance, security, monitoring, service level agreements (SLAs), user assistance, and user training. By meeting these objectives, West Mercia can ensure that their IT environment is a reliable and essential component of their operations, increasing productivity and user happiness.